

CLAIMS:

1. A method of comparing a captured image with stored images, comprising:

capturing a facial image that has expressive features;

locating the expressive features of the captured facial image;

5 comparing an expressive feature of the captured facial image with the like expressive feature of the stored images, and if there is no match with any like expressive feature of the stored images then marking the expressive feature as a marked expressive feature;

10 comparing: 1) the captured image, minus the marked expressive feature, with 2) the stored images minus the like expressive feature that corresponds to the marked expressive feature.

2. The method as claimed in claim 1, wherein the captured image is in the form of a face model and the stored images are in the form of face models.

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3. The method as claimed in claim 1, wherein the locations of the expressive features are found using an optic flow technique.

4. The method as claimed in claim 2, wherein the face models are created using a classifier.

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5. The method as claimed in claim 4, wherein the classifier is a neural network.

6. The method as claimed in claim 4, wherein the classifier is a Maximum-Likelihood distance metric.
7. The method as claimed in claim 4, wherein the classifier is a Bayesian Network.
- 5 8. The method as claimed in claim 4, wherein the classifier is a radial basis function.
9. The method as claimed in claim 1, wherein the steps of comparing compare the pixels within expressive feature of the captured image with the like pixels within the expressive feature of the stored images.
- 10 10. The method as claimed in claim 1, wherein the step of marking stores the coordinates of the non-matching expressive feature of the captured image.
11. A device for comparing pixels within a captured image with pixels within stored
15 images, comprising:
 - a capturing device that captures a facial image having expressive features;
 - a facial feature locator which locates the expressive features of the captured
- facial image;
 - a comparator which compares the expressive features of the captured facial
20 image with the like expressive features of the stored images, and if there is no match with any expressive feature of the stored images then marking the expressive feature of the captured image as a marked expressive feature;

the comparator also compares 1) the captured image, minus the marked expressive features, with 2) the stored images minus the like expressive feature that corresponds to the marked expressive feature.

5 12. The device as claimed in claim 11, wherein the captured image is in the form of a face model and the stored images are in the form of face models.

13. The device as claimed in claim 11, wherein the facial feature locator is a Maximum-Likelihood distance metric.

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14. The device as claimed in claim 11, wherein the capturing device is a video grabber.

15. The device as claimed in claim 11, wherein the capturing device is a storage medium.

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16. The device as claimed in claim 11, wherein the comparator compares the pixels within expressive feature of the captured image with the like pixels within the expressive feature of the stored images.

20 17. The device as claimed is claim 11 further including a storage device which marks the expressive feature by storing the coordinates of the non-matching expressive feature of the captured image.

18. A device for comparing pixels within a captured image with pixels within

stored images, comprising:

capturing means for capturing a facial image that has expressive features;

facial feature locating means for locating the expressive features of the captured facial image;

5 comparing means which compare the pixels within the expressive features of the captured facial image with the pixels within the expressive features of the stored images, and if there is no match with any expressive feature of the stored images then storing in a memory the location of the expressive feature of the captured image;

10 the comparing means also for comparing 1) the pixels within the captured image, minus the pixels within the location of the non-matching expressive features, with 2) the pixels within the stored images minus the pixels within the location of the non-matching expressive features.

15 19. The device in accordance with claim 18, wherein the images are stored as face models.

20 20. The device in accordance with claim 18, wherein the locator is a maximum likelihood distance metric.

21. The device in accordance with claim 19, wherein the face models are created using radial basis functions.

22. The device in accordance with claim 19, wherein the face models are created

using Bayesian networks.

23. A face detection system, comprising:

a capturing device that captures a facial image that has expressive features;

5 a facial feature locator which locates the expressive features of the captured facial image;

a comparator which compares the pixels within the expressive features of the captured facial image with the pixels within the expressive features of the stored images, and if there is no match with any expressive feature of the stored images then
10 storing in a memory the location of the expressive feature of the captured image;

the comparator also compares 1) the captured image, minus the location of the non-matching expressive features, with 2) the stored images minus the coordinates of the non-matching expressive features.